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09/931,101	08/17/2001	Anh Nguyen	XMS-104	3650

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EXAMINER

HASHEM, LISA

ART UNIT	PAPER NUMBER
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2645

DATE MAILED: 06/09/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

09/931,101

Applicant(s)

NGUYEN ET AL.

Examiner

Lisa Hashem

Art Unit

2645

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 17 August 2001.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-29 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-29 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 17 August 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

## Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

## Attachment(s)

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)  | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date <u>3/12-17-2001</u> . | 6) <input type="checkbox"/> Other: _____  |

**DETAILED ACTION**

1. Claims 1-29 are pending in this office action.

***Information Disclosure Statement***

2. An initialed and dated copy of Applicant's IDS form 1449, Paper No. 3, is attached to the instant office action.

***Specification***

3. The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed.

The following title is suggested: 'System And Method For Detecting The Connections Of Two Antennae To A Radio Receiver'.

***Claim Rejections - 35 USC § 112***

4. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

5. Claim 1 recites the limitation "the connections" in line 1 on page 10. There is insufficient antecedent basis for this limitation in the claim.

***Claim Rejections - 35 USC § 102***

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

7. Claims 1 and 5-9 are rejected under 35 U.S.C. 102(b) as being clearly anticipated by U.S. Patent No. 5,216,434 by Fukumura.

Regarding claim 1, Fukumura discloses an antenna connection detection system for confirming the connections of two antennae to a radio receiver (see Abstract), comprising: a receiver having a first antenna connection port (Figure 1, 3) and a second antenna connection port (Figure 1, 4); a first antenna (Figure 1, 1) and a second antenna (Figure 1, 2); and a circuit via which the first and second antennae are in communication with the receiver (column 4, lines 11-23), wherein the receiver supplies a signal to the first antenna connection port and detects whether said signal is present at the second antenna connection port, thereby confirming that both the first and second antennae are connected to the radio receiver (column 4, line 51 – column 5, line 13).

Regarding claim 5, mentioned above, wherein Fukumura further discloses the circuit redirects the signal to the second antenna connection port (column 4, line 51 – column 5, line 13).

Regarding claim 6, the system of claim 1 mentioned above, wherein Fukumura further discloses a transistor circuit for detecting a presence of the signal (Figure 1, 533; column 2, lines 44-48).

Regarding claim 7, the system of claim 6 mentioned above, wherein Fukumura further discloses the transistor circuit (Figure 1, 533) is located in the radio receiver (Figure 1, 5).

Regarding claim 8, the system of claim 1 mentioned above, wherein Fukumura further discloses the signal is a voltage signal (column 4, lines 51-56).

Regarding claim 9 the system of claim 1 mentioned above, wherein Fukumura further discloses means for indicating whether either the first or the second antenna is disconnected (column 3, lines 11-39; column 5, lines 2-13).

8. Claim 10 is rejected under 35 U.S.C. 102(b) as being clearly anticipated by U.S. Patent No. 5,216,434 by Fukumura.

Regarding claim 10, Fukumura discloses a system for detecting whether two antennae are connected to a receiver (see Abstract), comprising: a first RF feed (Figure 1, 3) from a first antenna (Figure 1, 1); a second RF feed (Figure 1, 4) from a second antenna (Figure 1, 2); a signal generating source (Figure 1, 54) in communication with the first RF feed; a signal detection circuit (Figure 1, 53) in communication with the second RF feed (column 2, lines 14-51); and a DC pathway that includes the first and second RF feeds and electrically connects the signal generating source and signal detection circuit (column 2, lines 52-57).

9. Claims 25 and 29 are rejected under 35 U.S.C. 102(b) as being clearly anticipated by U.S. Patent No. 5,216,434 by Fukumura.

Regarding claim 25, Fukumura discloses a method of detecting antennae connection (see Abstract), comprising the steps of supplying a detection signal to a first antenna connection port (Figure 1, 3); routing said detection signal through a first antenna feed line (Figure 1, 31); returning said detection signal through a second antenna feed line (Figure 1, 41); and detecting a presence of said detection signal at a second antenna connection port (column 4, line 24 – column 5, line 13).

Regarding claim 29, the method of claim 25 mentioned above, wherein Fukumura further discloses the system comprising generating an indication of whether the detection signal is detected at the second antenna connection port (column 5, lines 7-13).

***Claim Rejections - 35 USC § 103***

10. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

11. Claims 2-4 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 5,216,434 by Fukumura as applied to claim 1 above, and further in view of U.S. Patent Application No. 2004/0032373 by Petros et al, hereinafter Petros.

The applied reference has a common inventor with the instant application. Based upon the earlier effective U.S. filing date of the reference, it constitutes prior art only under 35 U.S.C. 102(e). This rejection under 35 U.S.C. 103(a) might be overcome by: (1) a showing under 37 CFR 1.132 that any invention disclosed but not claimed in the reference was derived from the inventor of this application and is thus not an invention "by another"; (2) a showing of a date of invention for the claimed subject matter of the application which corresponds to subject matter disclosed but not claimed in the reference, prior to the effective U.S. filing date of the reference under 37 CFR 1.131; or (3) an oath or declaration under 37 CFR 1.130 stating that the application and reference are currently owned by the same party and that the inventor named in the application is the prior inventor under 35 U.S.C. 104, together with a terminal disclaimer in accordance with 37 CFR 1.321(c). For applications filed on or after November 29, 1999, this rejection might also be overcome by showing that the subject matter of the reference and the claimed invention were, at the time the invention was made, owned by the same person or subject to an obligation of assignment to the same person. See MPEP § 706.02(l)(1) and §

706.02(l)(2). (Note: Please refer to this paragraph in all 103(a) rejections using the following reference: U.S. Patent Application No. 2004/0032373 by Petros).

Regarding claims 2-4, the system of claim 1 mentioned above, wherein Fukumura does not disclose: the circuit comprises an LNA module, the first antenna is a satellite broadcast reception antenna and the second antenna is a terrestrial broadcast reception antenna, and the first and second antennae are in communication with respective low noise amplifiers.

Petros discloses a combined antenna system including a satellite antenna and terrestrial antenna (see Figure 7A), comprising: a receiver having a first antenna connection port (Figure 7A, 702) and a second antenna connection port (Figure 7A, 706); a first antenna (Figure 7A, 304) and a second antenna (Figure 7A, 302); and a circuit (Figure 7A, 326) via which the first and second antennae are in communication with the receiver (page 4: section 0040, line 1 – section 0043, line 14).

Petros further discloses the circuit comprises a LNA module or housing (Figure 7A, 326). The LNA module includes two low noise amplifiers, wherein the first and second antennae are in communication with respective low noise amplifiers.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the system of Fukumura to include: a LNA module, a satellite broadcast reception antenna, and a terrestrial broadcast reception antenna as taught by Petros to amplify RF signals channeled through the two antennae and to receive broadcast radio signals. One of ordinary skill in the art would have been lead to make such a modification since: the two low noise amplifiers that are included in the LNA module amplify RF signals channeled through the two antennae, the system can determine if both antennae are connected to the radio receiver via

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the LNA module, and one antenna can receive satellite transmissions and the other antenna can receive terrestrial transmissions.

12. Claims 11-17 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 5,216,434 by Fukumura as applied to claim 10 above, and further in view of U.S. Patent Application No. 2004/0032373 by Petros et al, hereinafter Petros.

Regarding claims 11-12, the system of claim 10 mentioned above, wherein Fukumura further discloses that the first and second antennae are rod antennae (column 2, lines 14-15).

Fukumura does not disclose the first antenna is one of a satellite broadcast reception antenna and a terrestrial broadcast reception antenna and the second antenna is the other of a satellite broadcast reception antenna and a terrestrial broadcast reception antenna.

Petros discloses a combined antenna system including a satellite antenna and terrestrial antenna (see Figure 7A), comprising: a receiver having a first antenna connection port (Figure 7A, 702) and a second antenna connection port (Figure 7A, 706); a first antenna (Figure 7A, 304) and a second antenna (Figure 7A, 302); and a circuit (Figure 7A, 326) via which the first and second antennae are in communication with the receiver (page 4: section 0040, line 1 – section 0043, line 14).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the system of Fukumura to include a satellite broadcast reception antenna and a terrestrial broadcast reception antenna as taught by Petros to receive broadcast radio signals. One of ordinary skill in the art would have been lead to make such a modification since one antenna can receive satellite transmissions and the other antenna can receive terrestrial transmissions.



Regarding claim 13, the system of claim 11 mentioned above, wherein Petros further discloses the system comprises a low noise amplifier (Figure 7A, 704).

Regarding claim 14, the system of claim 11, mentioned above, wherein Fukumura further discloses the signal generating source (Figure 1, 54) and signal detection circuit (Figure 1, 53) are located in the receiver (Figure 1, 5).

Regarding claim 15, the system of claim 11, mentioned above, wherein Fukumura further discloses the signal detection circuit comprises a transistor (Figure 1, 533; column 2, lines 44-48).

Regarding claim 16, the system of claim 11, mentioned above, wherein Fukumura further discloses the system comprises a voltage regulator (column 4, lines 51-56).

Regarding claim 17, the system of claim 11, mentioned above, wherein Fukumura further discloses the system comprises means for indicating whether either the first or the second antenna is disconnected (column 3, lines 11-39; column 5, lines 2-13).

13. Claims 18-24 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 5,216,434 by Fukumura in view of U.S. Patent Application No. 2004/0032373 by Petros et al, hereinafter Petros.

Regarding claim 18, Fukumura discloses a system for confirming that two antennae (Figure 1: 1, 2) are connected to a radio receiver (Figure 1, 5), comprising: a radio receiver (Figure 1, 5) comprising a signal generating source (Figure 1, 54), a first antenna feed connection port (Figure 1, 3), a second antenna feed connection port (Figure 1, 4), and a signal detection circuit (Figure 1, 53); and a signal pathway that electrically connects the signal generating source and the signal detection circuit to each other (column 2, lines 52-57).

Fukumura does not disclose a system including: a low noise amplifier (LNA) module comprising a first LNA and a second LNA, wherein the first LNA is in communication with a first antenna and the second LNA is in communication with a second antenna, and wherein outputs of the first and second LNAs are in communication, respectively, with the first antenna feed connection port and the second antenna feed connection port; and a signal pathway that passes, at least in part, through the LNA module and electrically connects the signal generating source and the signal detection circuit to each other.

Petros discloses a combined antenna system including a satellite antenna and terrestrial antenna (see Figure 7A), comprising: a receiver having a first antenna connection port (Figure 7A, 702) and a second antenna connection port (Figure 7A, 706); a first antenna (Figure 7A, 304) and a second antenna (Figure 7A, 302); and a circuit (Figure 7A, 326) via which the first and second antennae are in communication with the receiver (page 4: section 0040, line 1 – section 0043, line 14).

Wherein Petros further discloses a low noise amplifier (LNA) module (Figure 7A, 716) comprising a first LNA (Figure 7A, 704) and a second LNA (Figure 7A, 710), wherein the first LNA is in communication with a first antenna and the second LNA is in communication with a second antenna, and wherein outputs of the first and second LNAs are in communication, respectively, with the first antenna feed connection port (Figure 7A, 316) and the second antenna feed connection port (Figure 7A, 312); and a signal pathway that passes, at least in part, through the LNA module (page 4: section 0040, line 1 – section 0043, line 14).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the system of Fukumura to include a LNA module as taught by Petros to

amplify RF signals channeled through the two antennae. One of ordinary skill in the art would have been lead to make such a modification since the two low noise amplifiers that are included in the LNA module amplify RF signals channeled through the two antennae and the system can determine if both antennae are connected to the radio receiver via the LNA module.

Regarding claim 19, the system of claim 18 mentioned above, wherein Petros further discloses the LNA module further comprises a voltage regulator (Figure 7B, 750; page 4, section 0042, lines 1-21).

Regarding claim 20, the system of claim 18 mentioned above, wherein Fukumura further discloses the signal generating source comprises a source of voltage (Figure 1, 54; column 2, lines 52-57).

Regarding claim 21, the system of claim 18 mentioned above, wherein Fukumura further discloses the signal detection circuit comprises a transistor circuit (Figure 1, 533; column 2, lines 44-48).

Regarding claim 22, the system of claim 18 mentioned above, wherein Petros further discloses the first antenna is one of a satellite broadcast reception antenna and a terrestrial broadcast reception antenna (page 4, section 0040, lines 1-11).

Regarding claim 23, the system of 22 mentioned above, wherein Petros further discloses the second antenna is the other of a satellite broadcast reception antenna and a terrestrial broadcast reception antenna (page 4, section 0040, lines 1-11).

Regarding claim 24, the system of claim 18 mentioned above, wherein Fukumura further discloses the signal path way comprises a diode (Figure 1, 539; column 2, lines 48-51; column 3, lines 19-49).

14. Claims 26-28 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 5,216,434 by Fukumura as applied to claim 25 above, and further in view of U.S. Patent Application No. 2004/0032373 by Petros et al, hereinafter Petros.

Regarding claim 26, the method of claim 25 mentioned above, wherein Fukumura does not disclose looping back the detection signal in a low noise amplifier LNA module.

Petros discloses a combined antenna system including a satellite antenna and terrestrial antenna (see Figure 7A), comprising: a receiver having a first antenna connection port (Figure 7A, 702) and a second antenna connection port (Figure 7A, 706); a first antenna (Figure 7A, 304) and a second antenna (Figure 7A, 302); and a circuit (Figure 7A, 326) via which the first and second antennae are in communication with the receiver (page 4: section 0040, line 1 – section 0043, line 14).

Wherein Petros further discloses a low noise amplifier (LNA) module (Figure 7A, 716) comprising a first LNA (Figure 7A, 704) and a second LNA (Figure 7A, 710), wherein the first LNA is in communication with a first antenna and the second LNA is in communication with a second antenna, and wherein outputs of the first and second LNAs are in communication, respectively, with the first antenna feed connection port (Figure 7A, 316) and the second antenna feed connection port (Figure 7A, 312); and a signal pathway that passes, at least in part, through the LNA module (page 4: section 0040, line 1 – section 0043, line 14).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the system of Fukumura to include a LNA module as taught by Petros to loop back the detection signal. One of ordinary skill in the art would have been lead to make

such a modification since the LNA module can determine if both antennae are connected to the radio receiver via the LNA module.

Regarding claim 27, the method of claim 26 mentioned above, wherein Petros further discloses the LNA module comprises a first LNA and a second LNA, and wherein outputs of the first and second LNAs are connected, respectively, the first antenna connection port and the second antenna connection port (see Figure 7A).

Regarding claim 28, the method of claim 25 mentioned above, wherein Fukumura further discloses utilizing the detection signal as a power source (column 4, lines 51-56).

Fukumura does not disclose utilizing the detection signal as a power source for at least one low noise amplifier (LNA).

Petros discloses a combined antenna system including a satellite antenna and terrestrial antenna (see Figure 7A), comprising: a receiver having a first antenna connection port (Figure 7A, 702) and a second antenna connection port (Figure 7A, 706); a first antenna (Figure 7A, 304) and a second antenna (Figure 7A, 302); and a circuit (Figure 7A, 326) via which the first and second antennae are in communication with the receiver (page 4: section 0040, line 1 – section 0043, line 14).

Wherein Petros further discloses a low noise amplifier (LNA) module (Figure 7A, 716) comprising a first LNA (Figure 7A, 704) and a second LNA (Figure 7A, 710), wherein the first LNA is in communication with a first antenna and the second LNA is in communication with a second antenna, and wherein outputs of the first and second LNAs are in communication, respectively, with the first antenna feed connection port (Figure 7A, 316) and the second antenna

feed connection port (Figure 7A, 312); and a signal pathway that passes, at least in part, through the LNA module (page 4: section 0040, line 1 – section 0043, line 14).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the system of Fukumura to include a LNA module as taught by Petros to amplify RF signals channeled through the two antennae. One of ordinary skill in the art would have been lead to make such a modification since the two low noise amplifiers that are included in the LNA module amplify RF signals channeled through the two antennae and the system can determine if both antennae are connected to the radio receiver via the LNA module.

### ***Conclusion***

15. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure

- U.S. Patent No. 4,525,869 by Hamada et al disclose a diversity receiver including plural antennae and one receiver to switch the antennae in response to their receiving conditions; wherein the diversity receiver
- Japanese Patent Application No. JP 0249042 by Hoshino discloses a receiver that includes two antennae, wherein the presence of connection between an antenna and a reception circuit is detected and an alarm signal is produced in the case of disconnection, which makes it possible to determine the presence of connection.

16. Any response to this action should be mailed to:

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**Or faxed to:**

(703) 872-9314 (for formal communications intended for entry)

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**Or call:**

(703) 306-0377 (for customer service assistance)

Hand-delivered responses should be brought to: Crystal Park II, 2121 Crystal Drive, Arlington, VA, Sixth Floor (Receptionist).

17. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Lisa Hashem whose telephone number is (703) 305-4302. The examiner can normally be reached on M-F 8:30-5:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Fan Tsang can be reached on (703) 305-4895. Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Group receptionist whose telephone number is (703) 305-3900.

LH

lh

May 19, 2004

FAN TSANG  
SUPERVISORY PATENT EXAMINER  
TECHNOLOGY CENTER 2600

